FIG.1

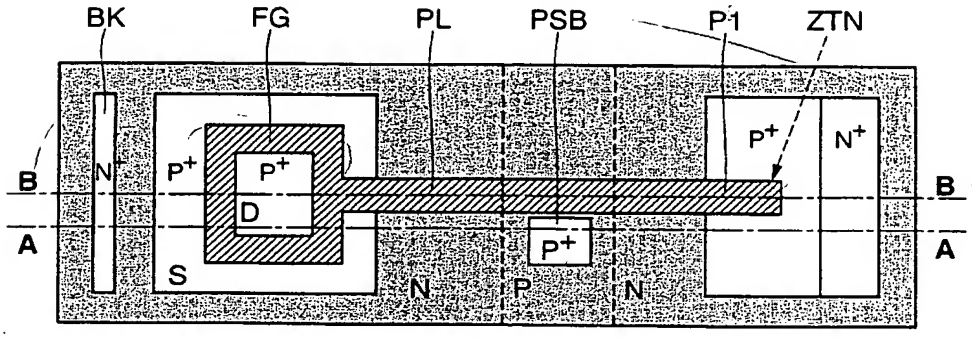


FIG.1a

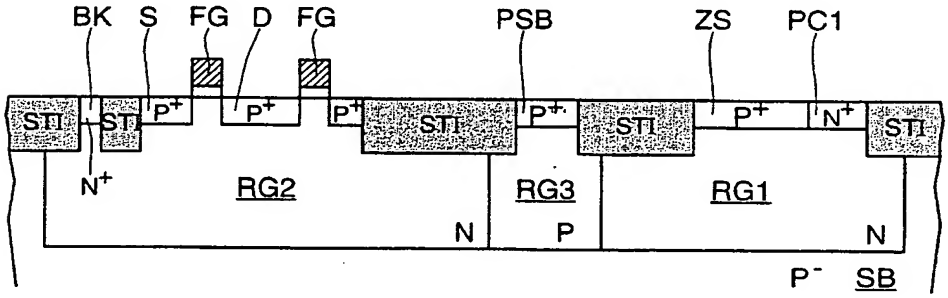


FIG.1b

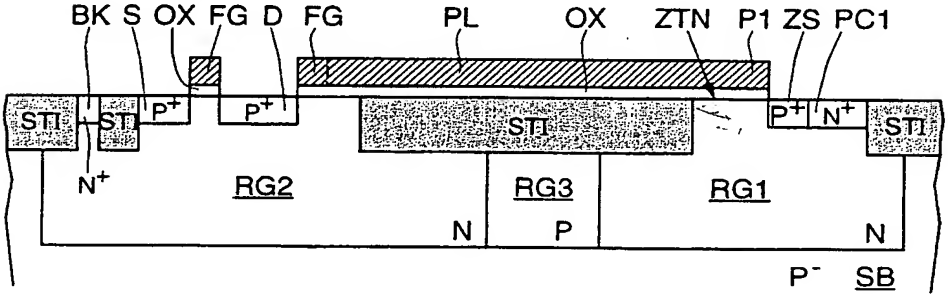


FIG.2

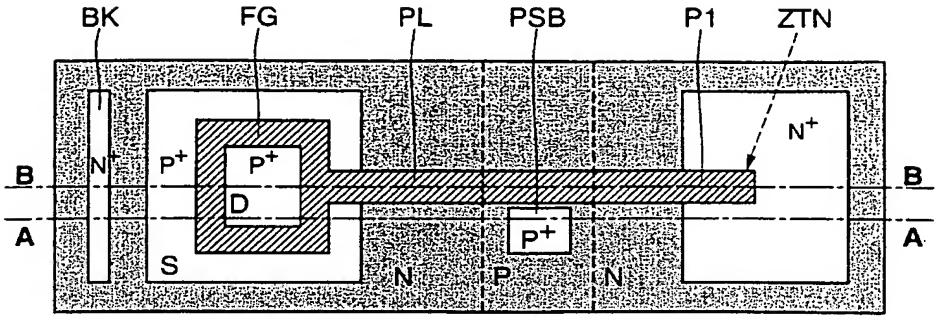


FIG.2a

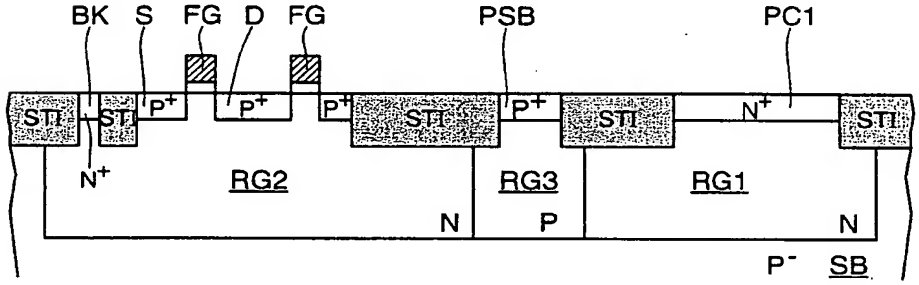


FIG.2b

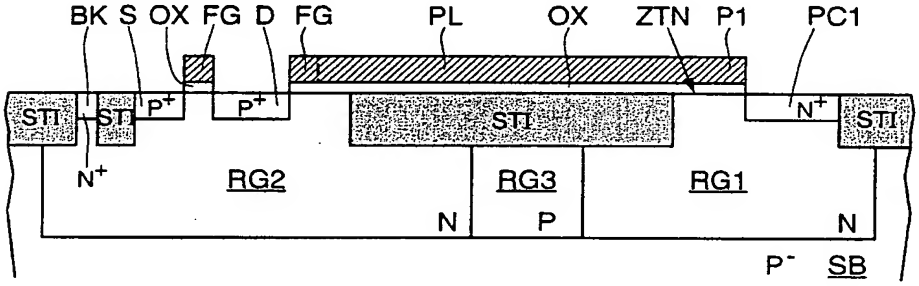


FIG.3

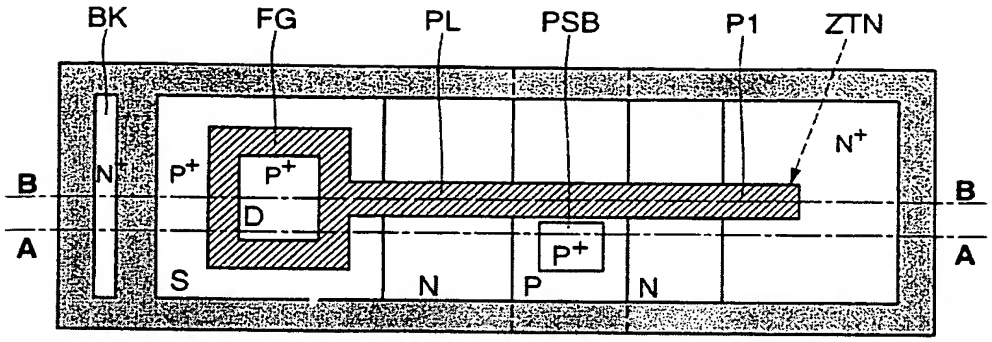


FIG.3a

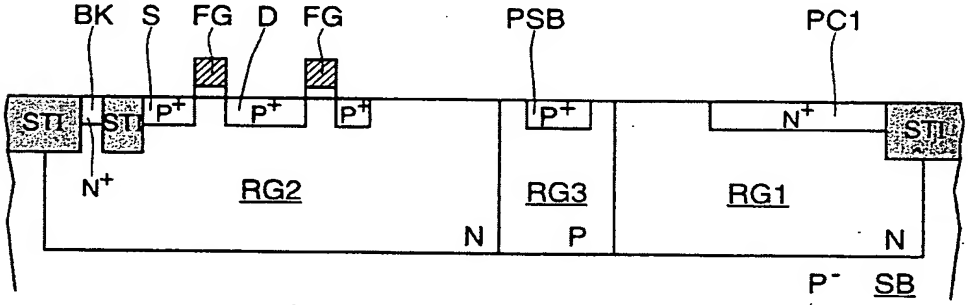


FIG.3b

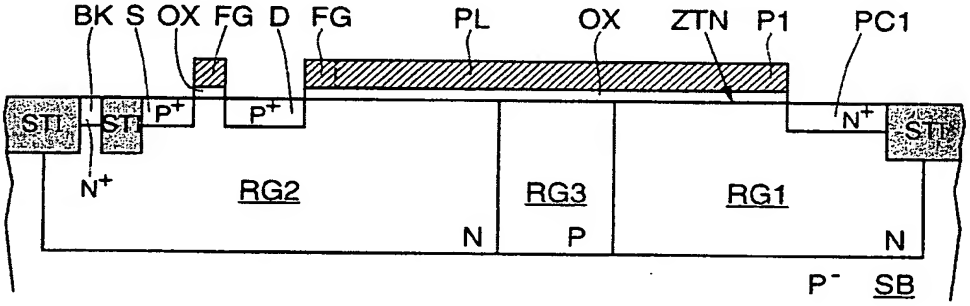


FIG.4

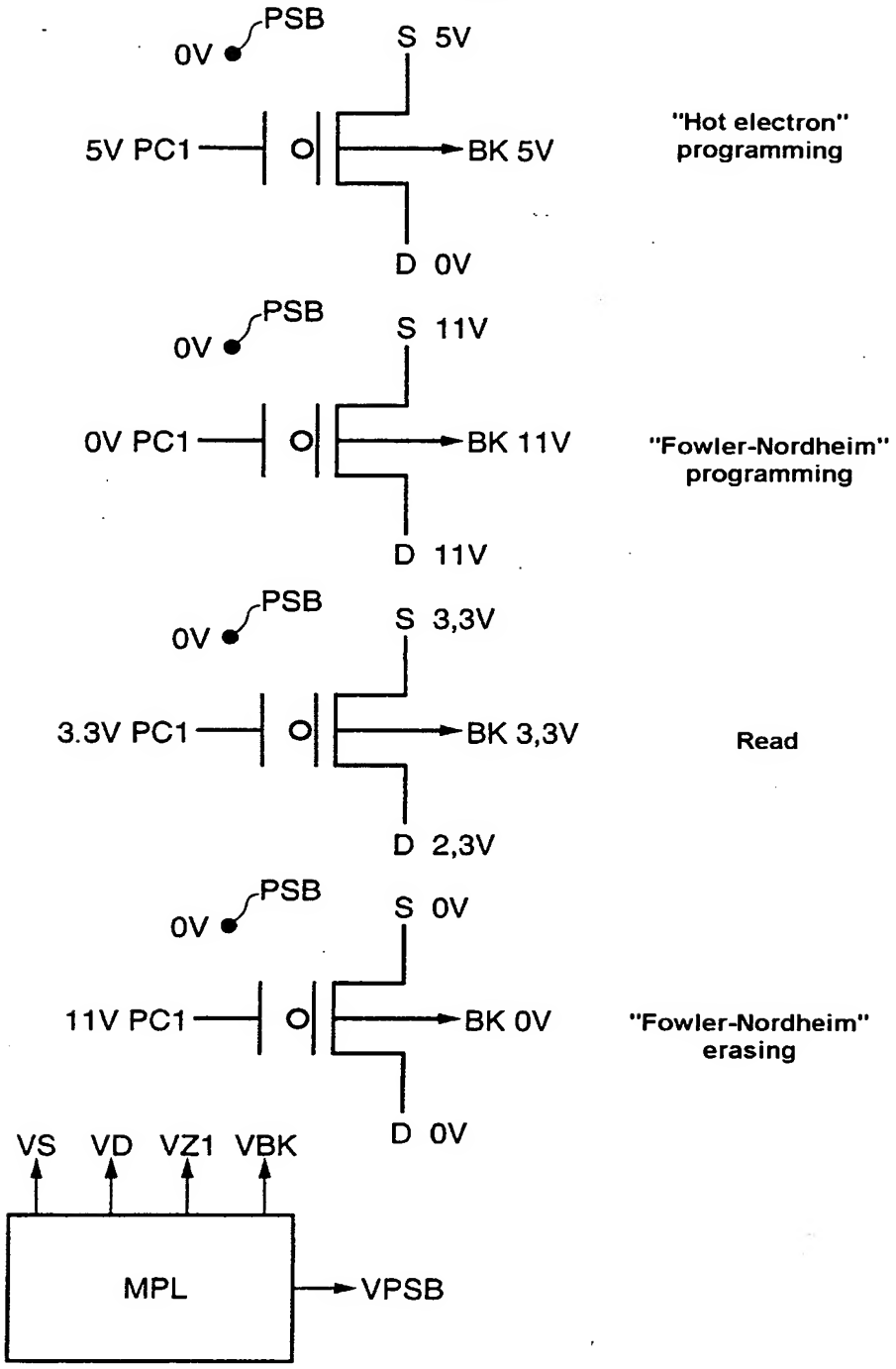

PSB
0V
S 5V
5V PC1
BK 5V
D 0V
"Hot electron" programming
PSB
0V
S 11V
0V PC1
BK 11V
D 11V
"Fowler-Nordheim" programming
PSB
0V
S 3,3V
3.3V PC1
BK 3,3V
D 2,3V
Read
PSB
0V
S 0V
11V PC1
BK 0V
D 0V
"Fowler-Nordheim" erasing
VS
VD
VZ1
VBK
MPL
VPSB

FIG.5

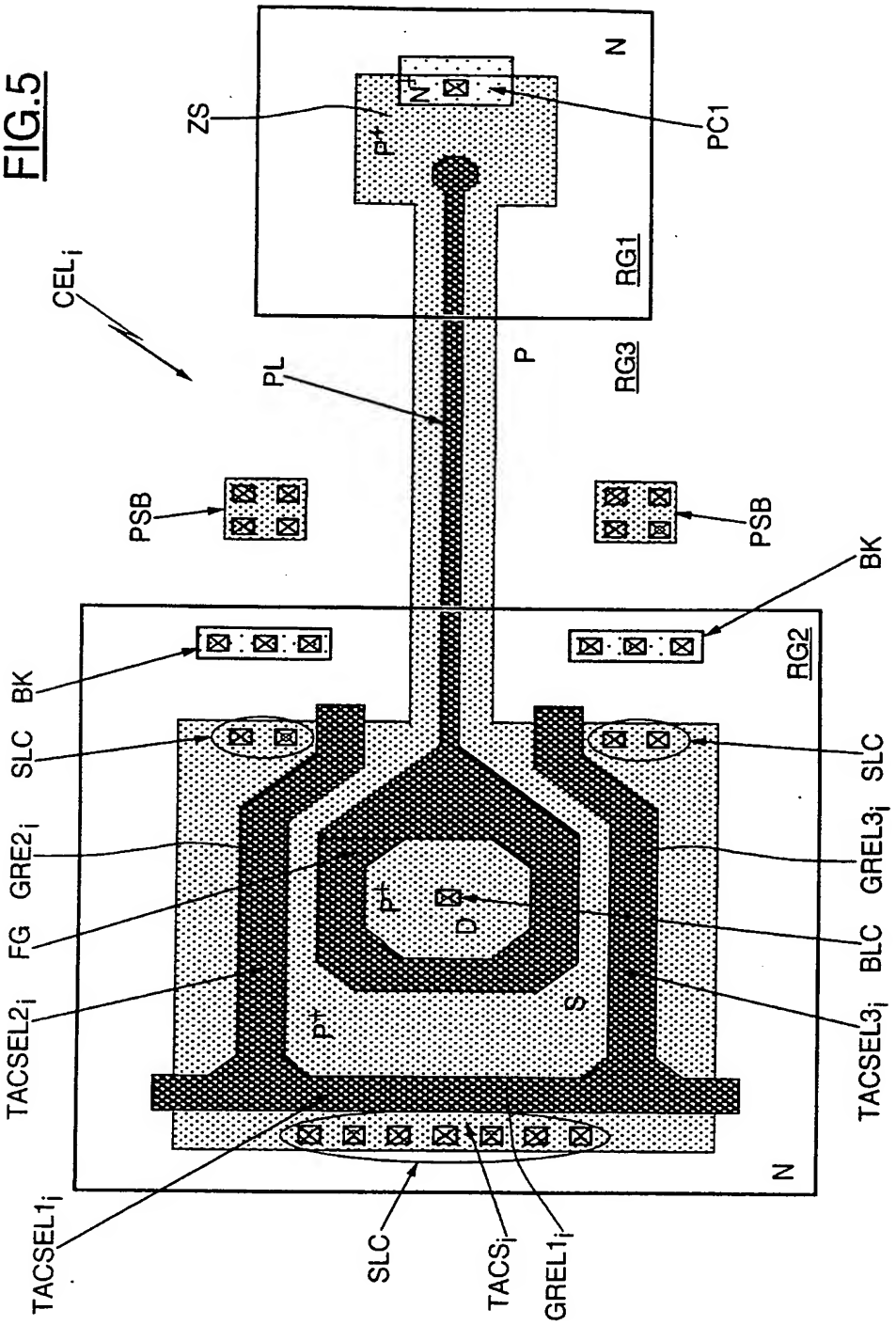

ZS
PC1
N
N+
P+
RG1
CEL$_i$
PL
P
RG3
PSB
PSB
BK
BK
SLC
SLC
RG2
GRE2$_i$
GREL3$_i$
FG
BLC
TACSEL2$_i$
TACSEL3$_i$
D
S
P+
N
TACSEL1$_i$
SLC
TACS$_i$
GREL1$_i$

FIG.6

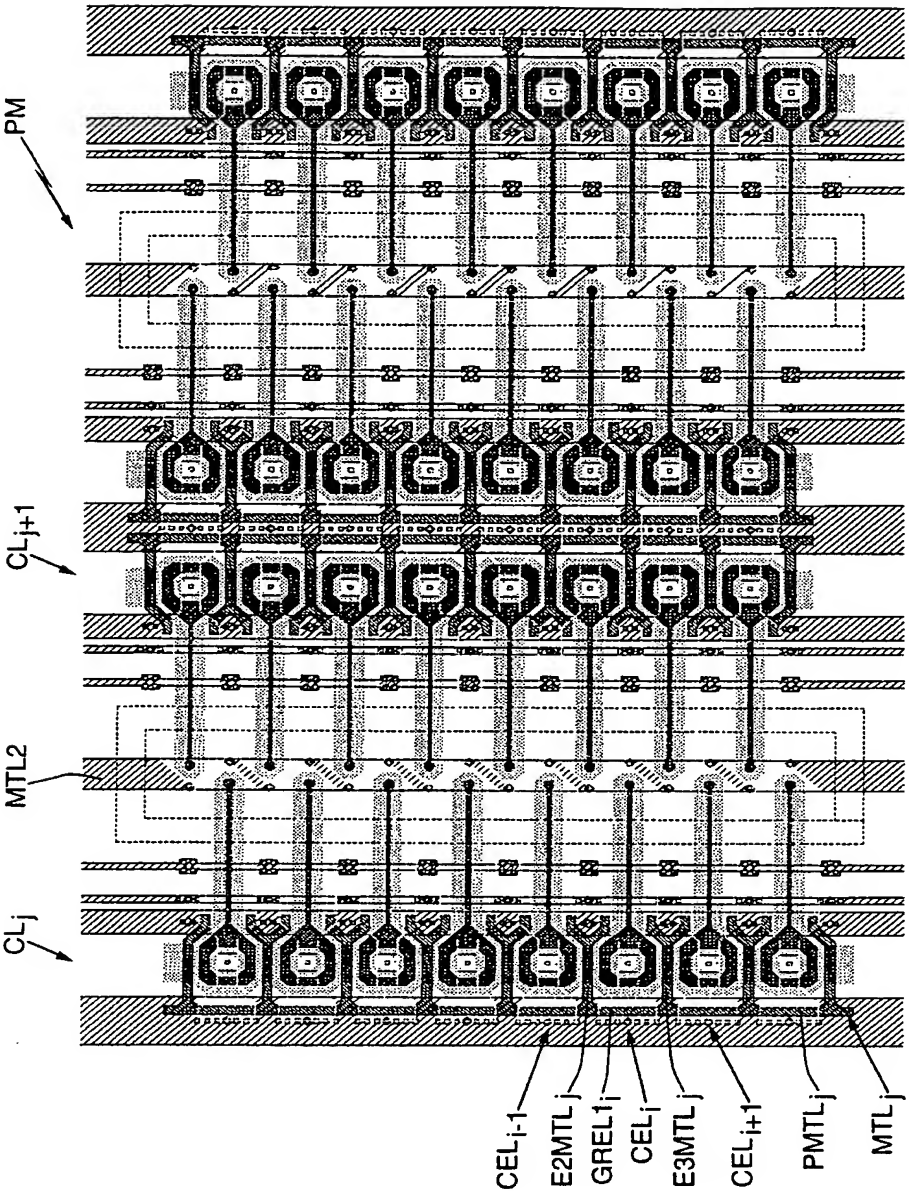

PM
CLj+1
MTL2
CLj
CELi-1
E2MTLj
GREL1j
CELj
E3MTLj
CELi+1
PMTLj
MTLj

FIG.7

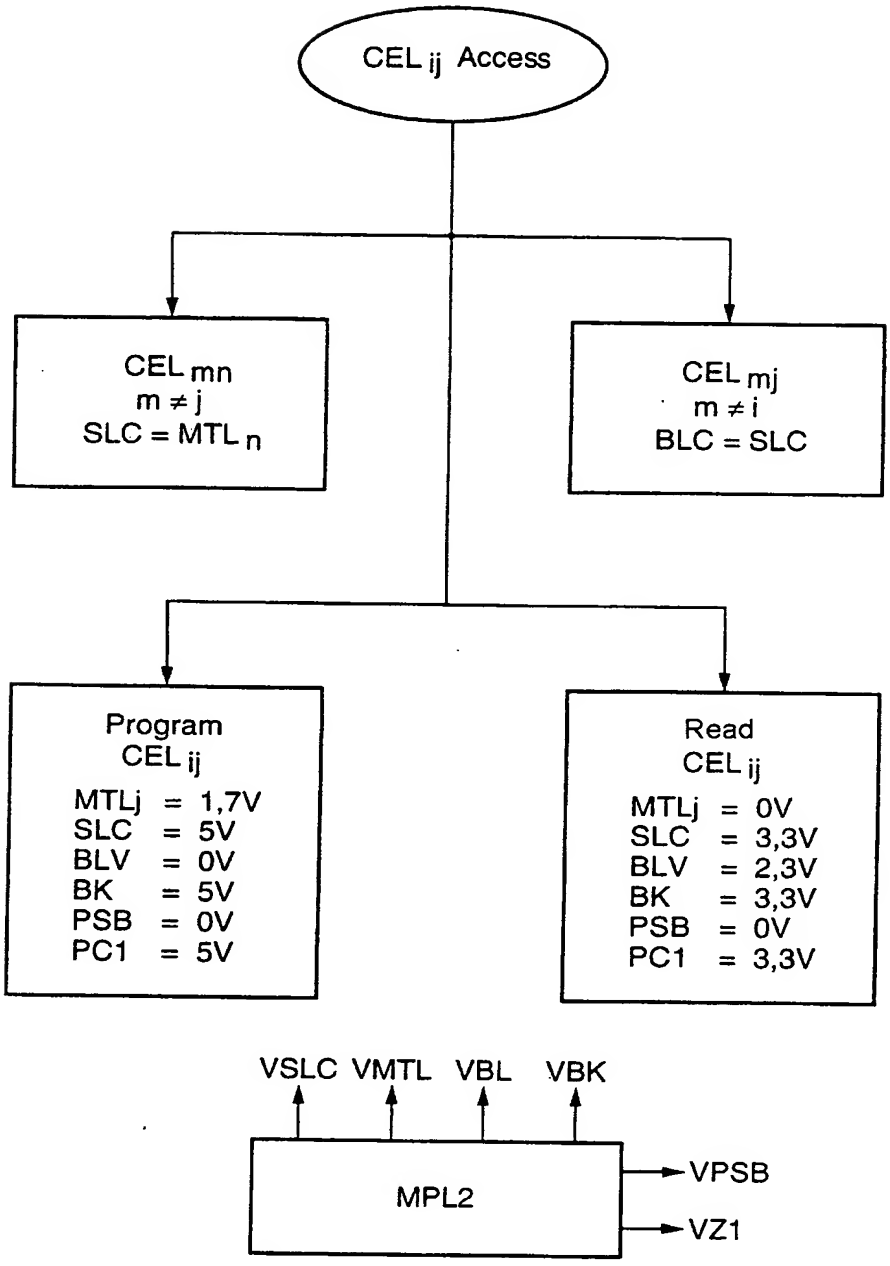

CEL ij Access
CEL mn
m ≠ j
SLC = MTL n
CEL mj
m ≠ i
BLC = SLC
Program
CEL ij
MTLj = 1,7V
SLC = 5V
BLV = 0V
BK = 5V
PSB = 0V
PC1 = 5V
Read
CEL ij
MTLj = 0V
SLC = 3,3V
BLV = 2,3V
BK = 3,3V
PSB = 0V
PC1 = 3,3V
VSLC VMTL VBL VBK
MPL2
VPSB
VZ1

FIG.8

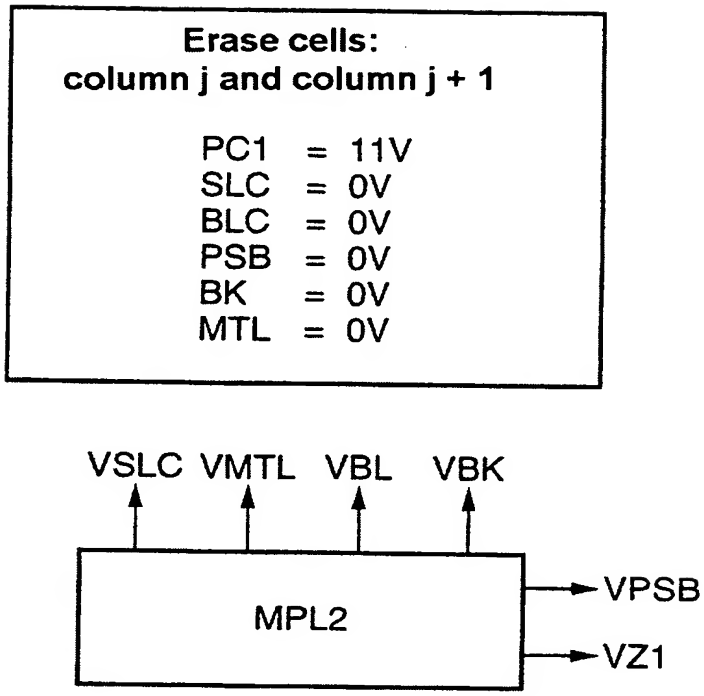
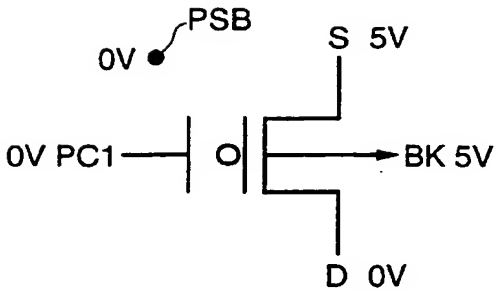
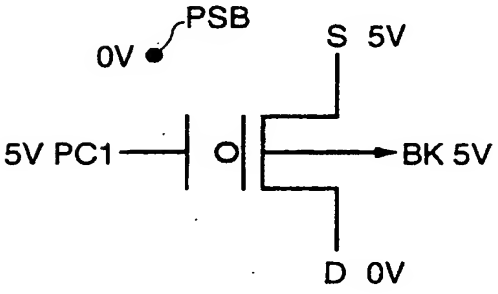

Erase cells:
column j and column j + 1
PC1 = 11V
SLC = 0V
BLC = 0V
PSB = 0V
BK = 0V
MTL = 0V
VSLC
VMTL
VBL
VBK
MPL2
VPSB
VZ1

FIG.10



"Hot electron" programming: 1st stage



"Hot electron" programming: 2nd stage

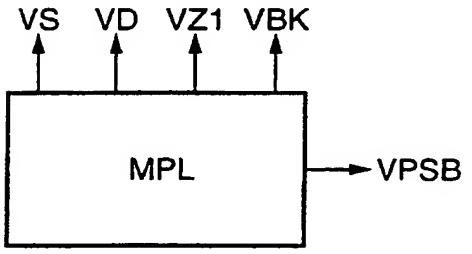


FIG.11

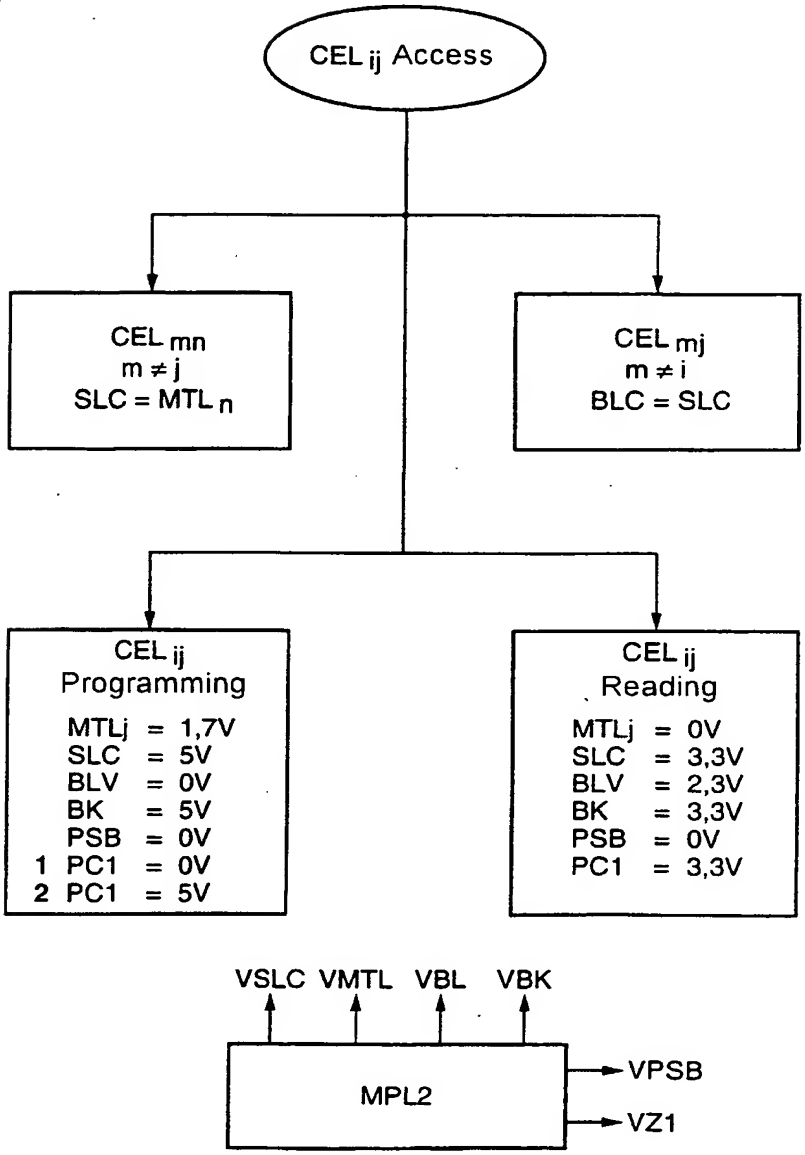

CEL ij Access
CEL mn
m ≠ j
SLC = MTL n
CEL mj
m ≠ i
BLC = SLC
CEL ij
Programming
MTLj = 1,7V
SLC = 5V
BLV = 0V
BK = 5V
PSB = 0V
1 PC1 = 0V
2 PC1 = 5V
CEL ij
Reading
MTLj = 0V
SLC = 3,3V
BLV = 2,3V
BK = 3,3V
PSB = 0V
PC1 = 3,3V
VSLC VMTL VBL VBK
MPL2
VPSB
VZ1

FIG.12

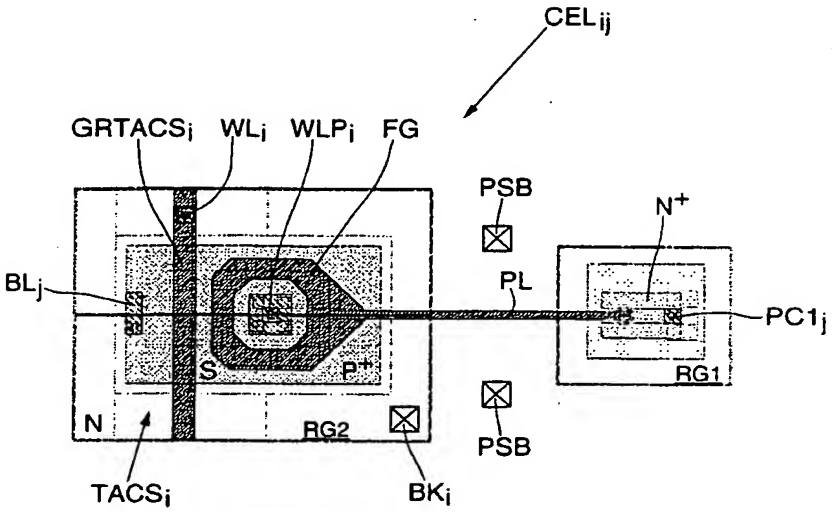

CEL$_{ij}$
GRTACS$_i$
WL$_i$
WLP$_i$
FG
PSB
N$^+$
BL$_j$
PL
PC1$_j$
S
P$^+$
RG1
N
RG2
PSB
TACS$_i$
BK$_i$

FIG.13

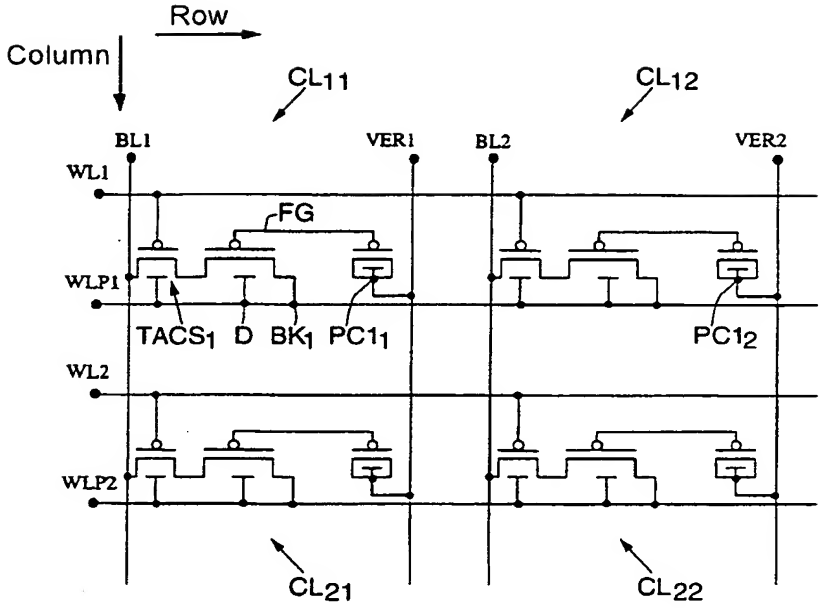

Row
Column
CL11
CL12
BL1
VER1
BL2
VER2
WL1
FG
WLP1
TACS1
D
BK1
PC11
PC12
WL2
WLP2
CL21
CL22

FIG.14

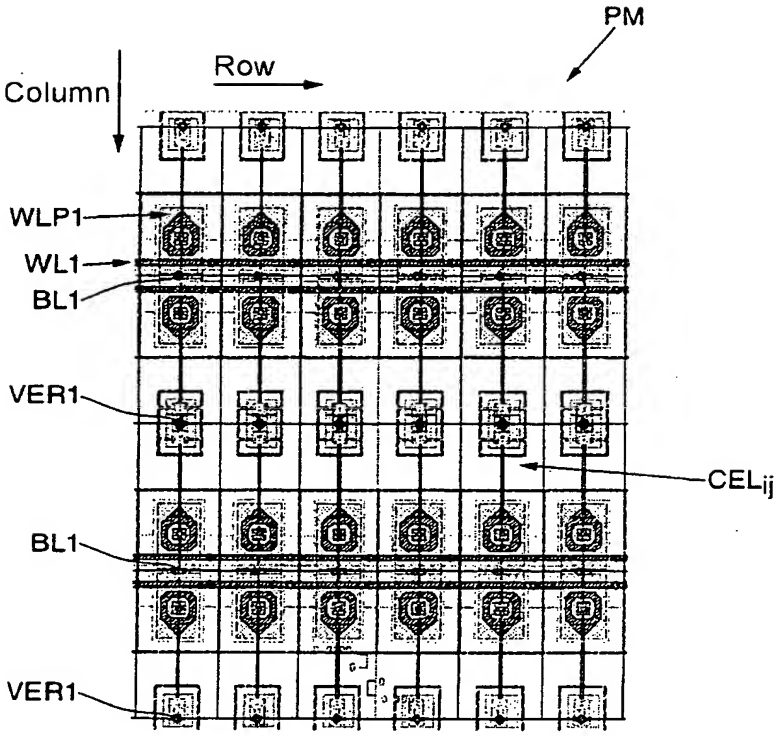
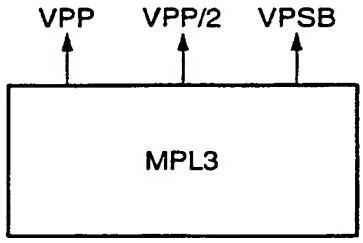


FIG.15

Config.	BL1	WL1	WLP1	VER1	BL2	WL2	WLP2	VER2
1	3.3	6.6	6.6	0.0	3.3	0	3.3	3.3
2	0.0	0.0	0.0	6.6	0.0	0.0	0.0	6.6
3	3.3-ε	0.0	3.3	3.3	3.3-ε	3.3	3.3	3.3